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ABSTRACT

A study involving 12 students (7 to 20 years old) was conducted to show that a population, classified as trainable mentally retarded, in a non-institutionalized, non-residential public school setting could learn to use the Blissymbolics system to "talk" by pointing to the appropriate symbol. In the 3 months of the project's initial phase, the lowest number of symbols learned was 10 and the greatest number of symbols learned was 73, with an average of 38 symbols learned by the 12 students. (SBH)

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A TEAM APPROACH TO NON-VERBAL COMMUNICATION SYSTEMS

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For some years growing concern for non-verbal students served by Lincoln Intermediate Unit has been expressed by educators and parents. There is something perplexing, indeed agonizing, in trying to understand the interests and needs of students who seem to understand and respond to their environment, but are unable to express themselves through even a semblance of normal speech.

In an effort to develop a communications system for these students, various approaches were initiated. The most obvious one involved the speech clinicians. Because of their training, they set about with vigor to "teach the child to talk." Still, some remained non-verbal. These students had to rely upon elementary gestures, pointing and unintelligible utterances to try to get their message across. The frustrations of such a situation were shared by the students, clinicians, teachers and parents. Some students just gave up, others acted out in anger and a few continued to display at least a facade of good nature.

Frustration among educators is nothing new. Properly channelled it can produce the "fighting spirit" needed to problem solve. So, with many others throughout the land, Lincoln Intermediate Unit staff members began to search and research.

To say a person is non-verbal, as with any label, only scratches the bare surface of his communication behavior, and the whys and wherefores of it. The student may be cerebral palsied to a degree which prevents the motor development needed to produce speech. Some students were suspected of verbal aphasia, apraxia, emotional problems, hearing impairment or any combination of these. Some were able to learn varying degrees of sign language, use picture boards and express themselves with more refined gestures.

In the spring of 1975 we heard Dr. David Yoder of the University of Wisconsin speak of a system called Blissymbolics, being tried with an institutionalized population outside of Madison, Wisconsin. By the fall of that same year, three professionals were off to Wisconsin to learn more about this still strange, new system.

Basically, it was learned that Blissymbolics is the brainchild of Charles K. Bliss, an electronics engineer, now residing in Sydney, Australia. An elderly gentleman, he had from his youth envisioned an international system of symbols through which all men could speak to one another regardless of native tongue. His highly developed system complete in all grammar and syntax never convinced the linguists of the world, and thus, lay dormant for decades. Not until the early 1970's was its value perceived by a dedicated core of people associated with the Ontario Crippled Children's Centre in Toronto, Canada.

Back on the home front, Lincoln Intermediate Unit 12, we set about getting the mechanics of our modest research project under way. By February 15, 1976, 12 students along an over 100-mile dog leg line of Intermediate Unit Trainable Mentally Retarded classes had been selected according to carefully controlled criteria including team staffing, testing, and parental permission not only to try the system, but to record progress on video tape. Teachers and clinicians were in-serviced; data sheets; Bliss Boards and symbols readied; and we took off.

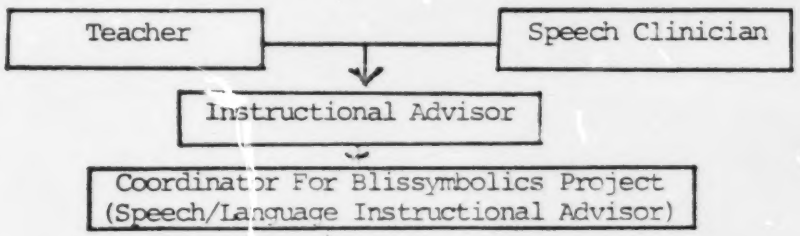
The students selected were considered to have an excellent chance of profiting, and displayed an understanding of basic language with good motivation to communicate. They ranged in age from 7-1 to 20 years.

Our basic premise in the endeavor was to show that a population, classified as Trainable Mentally Retarded, in a non-institutionalized, non-residential, public school setting could learn to use the system to "talk" by pointing to the appropriate symbol. At no time was speech abandoned. Vocalizations and verbalizations, wherever possible, were encouraged. But success was judged only on the establishment of learned symbols.

Our procedures in diagnostics included referring to any recent testing done on the students selected for the possible inclusion in the pilot study. We assessed informally attributes of good receptive language and cognitive skills, desire to communicate, developmental levels, present means of communication, visual acuity, visual search skills, form and figure-ground discernment, auditory skills, frustration level, discrete pointing and parental attitude.

Formal assessment tools which were required were the Peabody Picture Vocabulary Test and a Baseline using the Louis Kent Language Acquisition Program format. Other formal tools used, when appropriate, were Assessment of Children's Language Comprehension, Boehm Test of Basic Concepts, Porsche Index of Communication Ability in Children, Picture Test of Intelligence by French and the Hiskey-Nebraska.

The Referral System flowed thusly:



The team staffing was arranged to provide input from all concerned. Final approval of each student was by concensus, but responsibility rested with the Coordinator.

During the ensuing parent conference, the parents were encouraged to help in the selection of the base ten symbols to be learned. Frequently, the parents' plea was for 'Mother,' 'Father,' other family members, and functional needs such as, bathroom, food, drink, TV, etc.

The kinds of problems encountered as we moved into the project, which were part and parcel to the geographic distance, were:

a. isolation that teachers and clinicians experienced when there was only one student on the symbol system;

b. arranging intra-team staffings;

c. inflated expectations by clinicians and teachers regarding instant success.

When ten or so core symbols had been established according to predetermined criteria, a matching Bliss Board went home so that the students could talk and be reinforced there.

In school and at home common objects, room features and the like were labeled with the proper symbols. Teachers, aides, and clinicians worked closely together. Symbols were also incorporated into regular classroom lessons.

In the brief three months of the initial phase of the project, the lowest number of symbols learned was 10 by a young student who was absent more than one-half of all school time during the period. The greatest number of symbols learned was seventy-three not including numbers 0-9. The two students achieving this worked well together and were communicating in basic sentences. They were also able to indicate their phone numbers and address. The average number of symbols learned among the 12 students was thirty-eight.

However, the statistics do not tell the story. The smiles, sometimes broad, sometimes sly, which were recorded time and time again on video tape, as non-verbal people became communicators, was the real proof. Imagine being able to ask a question, get or give an answer, tell someone to "bug off" or to say "I want," "I have," "I am."

ORIGINAL BLISS PROJECT DATA

C.A. 2/76 to 2/78	PPVT Scores 2/76 to 2/78	Vocabulary Growth PPVT 2/76 to 2/78	No. $\bar{x}$ Introduced 2/76 to 2/78	No. $\bar{x}$ Established 2/76 to 2/78
*A. 85 mos.-109 mos.	56 mos.-67 mos.	11 mos.	Verbal	Verbal
**B. 98 mos.-122 mos.	25 mos.-26 mos.	1 mon.	18	13
*C. 134 mos.-158 mos.	56 mos.-59 mos.	3 mos.	Verbal	Verbal
(M)D. 148 mos.-172 mos.	85 mos.-87 mos.	2 mos.	Moved	Moved
E. 143 mos.-172 mos.	69 mos.-151 mos.	82 mos.	150	150
MEAN - 14.7	71 mos.-73 mos.	2 mos.	107	99
F. 169 mos.-193 mos.	58 mos.-73 mos.	15 mos.	137	126
G. 170 mos.-190 mos.	17 mos.-15 mos.	-2 mos.	170	150
H. 188 mos.-212 mos.	65 mos.-65 mos.	0 mos.	75	68
I. 188 mos.-212 mos.	58 mos.-62 mos.	4 mos.	24	30
J. 204 mos.-228 mos.	147 mos.-153 mos.	6 mos.	175	160

** Now on Picture Board

BLISS BOARD USE

AS OF 2/78	*A	**B	*C	D(M)	E	F	G	H	**I	J
Used only with familiar people		✓		✓(M)				✓		✓
Used spontaneously	*Verbal		*Verbal		✓	✓	✓		✓	
Rate of Learning System	*Good	Fair	Good	Good	V.G.	V.G.	V.G.	Good	Fair	V.G.

LEVELS OF OUTPUT

AS OF 2/78	*A	**B	*C	D(M)	E	F	G	H	**I	J
No. $\bar{x}$ established		14	46	61	150	126	150	68	30	160
Vocal/verbal behavior	6	5	6	6	5	6	6	6	6	6
Single word responses	*Verbal	✓								
2 word responses										
Short phrases/ sentences (in training)				✓						✓
Short phrases/sentences (spontaneously)			*Verbal					✓		
Conversation/ correspondence					✓	✓	✓		✓	✓
No. of strategies					6	3	3			3

Discussion of Data

The data presented indicates that two students became verbal. We believe this occurred, because the system gave organization and reduced pressure on speech. Both A. and C. had received much "speech therapy" to little avail. A. appeared to have an emotional overlay hindering verbalness, while C. is a cerebral palsied lad who was verbal but unintelligible. Quite frankly, he did not like pointing to symbols, and seemed to understand that if he produced the kind of verbal output of which he was capable, the symbols would be withdrawn. Student E. who showed the greatest growth in vocabulary had both an emotional and physical block in efforts to speak. It appears the emotional block has been considerably reduced. There does not seem to be any significant correlation between vocabulary growth and ability to deal with symbols.

In analyzing Bliss Board Use and Levels of Output, it appears that the older students outdistanced younger students. Perhaps this is due to their longer social experiences level. But it was two of the youngest students who became verbal. We are definitely looking at this occurrence as to possible early use of symbols to assist younger TMR students.

The expansion of vocabulary needs to reflect the student's needs and desires. Whenever possible, the student is involved in making the selection. Considerations of age, school, work situations and social needs should be present on the communication display. Various strategies are used to get greatest mileage out of the symbols already established.

Portability of the communication display is essential. We are continually indebted to creative teachers, clinicians, and persons in the community for the time-consuming efforts they have self-initiated to produce materials, games, individualization of products for students. A recent joy was seeing an oaktag set of 3 X 5 cards worn in necklace fashion with symbols needed to participate in the local Special Olympics.

The original Blissymbolics Project will continue as a longitudinal study. We are now involved with a total of 30 students formally on non-verbal systems. Ten are using Blissymbolics - PLUS. The PLUS, depending on the student, means use of a combined system to meet needs. The symbols are used in conjunction with pictures, gestures and to clarify 'signing' for those uninitiated to signs. Ten students use Pictures - PLUS implying use of objects, eye pointing or sign. These students are presently lower functioning. Depending upon their progress, they may or may not arrive at a point where they can handle a more sophisticated communications system.

Since April of 1976, we have been in constant contact with the Blissymbolics Communication Foundation. We have shared our data, experiences and video tapes with Mrs. Shirley McNaughton, Director of Programme Development and her staff.

State of the Art

We are now working with students in the TMR, S/PMR and Physically Handicapped Programs. Combined systems are a necessity to meet individual student needs. Ongoing support to teachers, their aides, parents, clinicians, and other team members through workshops and individual contact must be maintained.

Students are expanding their use of their communication skills into social, workshop, and community settings. Some students now correspond with others via symbol letters.

The volume of requests for information and in-service to persons outside our Intermediate Unit is on a steady rise. We have shared such information with people in several Provinces of Canada, and in the Midwestern and Eastern United States.

Implications for the future include extension of non-verbal systems, when appropriate, to normally intelligent, language delayed students from pre-school through adulthood within and without the public schools. Information coming from other research projects show the use of Blissymbolics to be applicable and effective with some students diagnosed as emotionally disturbed, autistic, congenital or acquired brain damage, the physically handicapped, and some hearing impaired.

We urge anyone who may be considering the use of non-verbal communication alternatives to be exceedingly careful in diagnostics, preparation and methodical, developmentally planned implementation. In particular, if Blissymbolics seems the most viable alternative, be advised that it is a system requiring a high degree of teacher and clinical expertise and cooperation. Further, students must meet a criteria similar to the one described earlier in this paper.

Suggested Readings

Bliss, C. K., Semantography, Semantography Publications, P. O. Box 222, Coogee, Sydney, 2034, Australia, 1965.

Harris-Vanderheiden, C., W.P. Brown, P. MacKenzie, S. Reinen and C. Scheibel, "Symbol Communication for the Mentally Handicapped: An Application of Bliss Symbols as an Alternate Communication Mode for Non-Vocal Mentally Retarded Children with Motoric Impairment," Mental Retardation, February 1975.

Lloyd, Lyle (Ed.), Communication Assessment and Intervention Strategies, University Park Press 1976, Baltimore, Maryland.

McDonald, E. T. and A.R. Schultz, "Communication Boards for Cerebral Palsied Children," Journal of Speech and Hearing Disorders, 38, (February 1973): 73-88.

Ontario Crippled Children's Centre Bliss Project Team, Ontario Crippled Children's Centre Symbol Communication Research Project 1972-1973, Toronto, Ontario Crippled Children's Centre, 1973.

Vanderheiden, G., and D. Harris-Vanderheiden, "Communication Techniques and Aids for the Non-Vocal Severely Handicapped," in Lyle Lloyd (ed.) Communication Assessment and Intervention Strategies, University Park Press, Baltimore, Maryland, 1976.

Semantography-Blissymbolics - For the initial inspiration and symbol source for the symbols referred to herein, see the text Semantography-Blissymbolics by C.K. Bliss. Many of the symbols and procedures used herein have however been independently amended or conceived, for use in a teaching program for non-communicative children, by the writer or the staff of the Ontario Crippled Children's Centre, Toronto, and in many cases may not be in accordance with the Bliss system. For authoritative reference to the Bliss system and for copies of Semantography write to:

Blissymbolics Communication Foundation
862 Eglinton Avenue East
Toronto, Ontario
Canada M4G 2L1

Vicker, B., Nonoral Communication System Project 1964/73, Campus Stores Publishers, 17 West College, University of Iowa, Iowa City, Iowa, 52242, 1974.

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